Advanced Java Programming

Assignment 2

If you have not finished assignment 1, please do that before moving onward to this assignment.

1. Design an inheritance hierarchy to reflect a simple version of the animal kingdom. Define and implement methods how and where you think appropriate. Include along with your code an `animals.txt` file explaining your decisions about which classes and methods to implement and how you implemented them. Also feel free to make your taxonomy as expansive as you would like by adding new animals, classifications, and behaviors. Try to have at least 6 classes representing different animals in your kingdom.

   We haven't seen much of abstract class and interfaces yet, but as a general rule, we would like species to have their own classes and to subclass abstract classes that represent taxonomical parents. We would like behaviors that don't necessarily conform nicely to the taxonomic hierarchy to be abstracted away as interfaces (e.g. flight capability, swimming capability, eating habits (carnivore / herbivore), etc.). If you are feeling ambitious, you are encouraged to read more on abstract classes and interfaces and to try to use them here to the best of your understanding - this will prepare you well for our next class. As you design your inheritance hierarchy, aim for clarity and simplicity so that the hierarchy feels intuitive for another programmer who might use your classes.

   Note that you don't need to be strictly biologically accurate in your taxonomy. You can take liberties such as defining species as `Cat` instead of specific latin names. This is designed to be an exercise in Java inheritance, not biological nomenclature.

2. All your animals should implement a `public void eat()` method that is invoked when they are fed. Create a `Zoo` class that maintains an array of various animals, and then iterate through the array and feed all the animals. Be sure that you observe polymorphic behavior.